

CLAIMS

What is claimed is:

1. A method for making an actuator/coil assembly for a data storage

device, comprising the steps of:

5 overmolding a coil to an actuator, wherein said overmolding step comprises attaching said coil to said actuator; and

disposing an adhesive in at least one adhesive receptacle defined by said overmolding step, wherein said disposing step is executed after said overmolding step.

2. A method, as claimed in Claim 1, wherein:

10 said overmolding step comprises forming a first overmolded part that is attached to each of said actuator and said coil by said overmolding step.

3. A method, as claimed in Claim 2, wherein:

said overmolding step further comprises forming a bobbin that is attached to said coil by said overmolding step, wherein said coil is disposed about at least part of said

15 bobbin.

4. A method, as claimed in Claim 1, wherein:

said overmolding step comprises forming a first overmolded part and providing a first stiffness for an interconnection of said first overmolded part to at least one of said actuator and said coil, and wherein said disposing step comprises providing a second stiffness for said interconnection, wherein said second stiffness is greater than said first stiffness.

5. A method, as claimed in Claim 1, wherein:

said overmolding step comprises disposing said coil and said actuator in a mold, wherein said method further comprises the step of removing said actuator from said mold after said overmolding step and thereby with said coil being attached to said actuator, and
5 wherein said disposing step is executed after said removing step.

6. A method, as claimed in Claim 5, wherein:

said disposing step is executed without any fixtures to retain said coil in a predetermined position relative to said actuator.

7. A method, as claimed in Claim 1, wherein:

10 said overmolding step comprises forming a first overmolded part and forming a first adhesive receptacle in said first overmolded part, wherein said disposing step is executed within said first adhesive receptacle.

8. A method, as claimed in Claim 7, wherein:

said first overmolded part structurally joins said actuator with said coil.

15 9. A method, as claimed in Claim 8, wherein:

said forming a first adhesive receptacle step comprises disposing said first adhesive receptacle on a perimeter of said first overmolded part.

10. A method, as claimed in Claim 9, wherein:

20 said adhesive within said first adhesive receptacle attaches to both said first overmolded part and said actuator.

11. A method, as claimed in Claim 9, wherein:

said adhesive within said first adhesive receptacle attaches to both said first overmolded part and said coil.

12. A method, as claimed in Claim 9, wherein:

5 said adhesive within said first adhesive receptacle attaches to each of said actuator, said first overmolded part, and said coil.

13. A method, as claimed in Claim 7, wherein:

10 said coil comprises a coil opening, wherein said first overmolded part is disposed within said coil opening and is attached to said coil.

14. A method, as claimed in Claim 13, wherein:

15 said adhesive within said first adhesive receptacle attaches to both said first overmolded part and said coil.

10 15. A method, as claimed in Claim 1, wherein:

15 said overmolding step comprises forming a first overmolded part, forming at least one said adhesive receptacle in said first overmolded part, forming a second overmolded part, and forming at least one said adhesive receptacle in said second overmolded part, wherein said first overmolded part is disposed between and is attached to each of said actuator and said coil by said overmolding step, wherein said coil is disposed about at least part of said second overmolded part and is attached to said second overmolded part by said overmolding step, wherein said adhesive in at least one said adhesive receptacle is attached to at least said actuator and said first overmolded part, wherein said adhesive in at least one said adhesive receptacle is attached to at least said first overmolded part and said coil, and wherein said adhesive in at least one said adhesive receptacle is attached to both said coil and said second overmolded part.

20 20. A method, as claimed in Claim 1, further comprising the step of:

wicking said adhesive into a space after said disposing step.

17. A method for making an actuator/coil assembly for a data storage device, comprising the steps of:

disposing a coil and an actuator in a mold;

executing a first molding step comprising molding a first molded part that

5 structurally joins said coil to said actuator, wherein said first molding step is executed within said mold;

executing a second molding step comprising molding a bobbin that structurally joins said coil to said bobbin, wherein coil is disposed about at least part of said bobbin, and wherein said second molding step is also executed within said mold;

10 forming at least one adhesive receptacle in at least one of said first molded part and said bobbin during at least one of said first and second molding steps;

removing said actuator, said first molded part, said coil, and said bobbin from said mold as a single unit after completion of said first and second molding steps; and

disposing an adhesive in said at least one adhesive receptacle after said removing
15 step.

18. A method, as claimed in Claim 17, wherein:

said first and second molding steps are executed simultaneously.

19. A method, as claimed in Claim 17, wherein:

said first and second molding steps each comprise overmolding.

20

20. A method, as claimed in Claim 17, wherein:

1 said disposing step comprises increasing a stiffness of at least one of first and second interconnections, wherein said first interconnection is between said actuator and said coil, and wherein said second interconnection is between said coil and said bobbin.

5 21. A method, as claimed in Claim 17, wherein:

1 said disposing step is executed without any fixtures to retain said coil in a predetermined position relative to said actuator.

22. A method, as claimed in Claim 17, wherein:

10 said forming at least one adhesive receptacle step comprises a first adhesive receptacle that intersects with a joint defined in part by one of first molded part and said bobbin.

23. A method, as claimed in Claim 22, wherein:

15 said first adhesive receptacle intersects with a joint between said first molded part and said actuator.

24. A method, as claimed in Claim 22, wherein:

1 said first adhesive receptacle intersects with a joint between said first molded part and said coil.

25. A method, as claimed in Claim 22, wherein:

20 said first adhesive receptacle intersects with a joint between said first molded part and said actuator, as well as with a joint between said first molded part and said coil.

26. A method, as claimed in Claim 22, wherein:

1 said first adhesive receptacle intersects with a joint between said bobbin and said coil.

27. A method, as claimed in Claim 17, wherein:

5 said forming at least one adhesive receptacle step comprises forming a plurality of said adhesive receptacles, wherein said adhesive in at least one said adhesive receptacle is attached to at least said actuator and said first overmolded part, wherein said adhesive in at least one said adhesive receptacle is attached to at least said first overmolded part and said coil, and wherein said adhesive in at least one said adhesive receptacle is attached to both said coil and said bobbin.

28. A method, as claimed in Claim 17, wherein:

10 said forming at least one adhesive receptacle step comprises a first adhesive receptacle that intersects with a first joint between said actuator and said first molded part, as well as with a second joint between said first molded part and said coil, and wherein said forming at least one adhesive receptacle step further comprises forming a second adhesive receptacle that intersects with a second joint between said bobbin and said coil.

29. A method for making an actuator/coil assembly for a data storage device, comprising the steps of:

employing a first bonding operation to attach a coil to an actuator; and

employing a second bonding operation to attach said coil to said actuator, wherein
5 said second bonding operation is executed after a completion of said first bonding operation.

30. A method, as claimed in Claim 29, wherein:

said first bonding operation step comprises providing a first stiffness for an interconnection of said actuator to said coil, and wherein said second bonding operation
10 step comprises providing a second stiffness for said interconnection of said actuator to said coil, wherein said second stiffness is greater than said first stiffness.

31. A method, as claimed in Claim 29, wherein:

said first bonding operation comprises an overmolding operation, and wherein said second bonding operation comprises disposing an adhesive in at least one joint resulting
15 from said overmolding operation.

32. A method, as claimed in Claim 31, wherein:

said overmolding operation comprises forming a first overmolded part that is attached to each of said actuator and said coil.

33. A method, as claimed in Claim 31, wherein:

20 said overmolding operation comprises forming at least one adhesive receptacle in said first overmolded part, wherein said disposing step is executed within said at least one adhesive receptacle.

34. A method, as claimed in Claim 33, wherein:

5 said at least one adhesive receptacle intersects with a joint between said first overmolded part and said actuator.

35. A method, as claimed in Claim 33, wherein:

10 said at least one adhesive receptacle intersects with a joint between said first overmolded part and said coil.

36. A method, as claimed in Claim 33, wherein:

10 said at least one adhesive receptacle intersects with a joint between first overmolded part and said actuator, as well as with a joint between said first overmolded part and said actuator.

37. A method for making a coil/bobbin assembly for a data storage device, comprising the steps of:

employing a first bonding operation to attach a voice coil motor coil to a bobbin;
and

5 employing a second bonding operation to attach said bobbin to said coil, wherein
said second bonding operation is executed after a completion of said first bonding
operation.

38. A method, as claimed in Claim 37, wherein:

said first bonding operation step comprises providing a first stiffness for an
10 interconnection of said bobbin to said coil, and wherein said second bonding operation step
comprises providing a second stiffness for said interconnection of said bobbin to said coil,
wherein said second stiffness is greater than said first stiffness.

39. A method, as claimed in Claim 37, further comprising the step of:

forming said bobbin by an overmolding operation, wherein said overmolding
15 operation attaches said bobbin to said coil and comprises said first bonding operation.

40. A method, as claimed in Claim 39, wherein:

said second bonding operation comprises disposing an adhesive in at least one joint
resulting from said overmolding operation.

41. A method, as claimed in Claim 40, wherein:

20 said overmolding operation comprises forming at least one adhesive receptacle in
said bobbin that intersects with said coil, wherein said disposing step is executed within
said at least one adhesive receptacle.

42. A method, as claimed in Claim 41, wherein:
said overmolding operation forms a first overmolded part that also attaches said
coil to an actuator of the data storage device.

43. An actuator/coil assembly for a data storage device, comprising:
an actuator;
a coil interconnected with said actuator;
an first overmolded part attached to said coil;
5 at least one adhesive receptacle formed in said first overmolded part; and
adhesive disposed within said at least one adhesive receptacle and also within a
joint defined in part by said first overmolded part and intersecting with said at least one
adhesive receptacle.

44. An actuator/coil assembly, as claimed in Claim 43, wherein:

10 said first overmolded part that is attached to each of said actuator and said coil.

45. An actuator/coil assembly, as claimed in Claim 44, wherein:

said at least one adhesive receptacle intersects with a joint between said first
overmolded part and said actuator.

46. An actuator/coil assembly, as claimed in Claim 44, wherein:

15 said at least one adhesive receptacle intersects with a joint between said first
overmolded part and said coil.

47. An actuator/coil assembly, as claimed in Claim 44, wherein:

said at least one adhesive receptacle intersects with a joint between said first
overmolded part and said actuator, as well as with a joint between said first overmolded
20 part and said coil.

48. An actuator/coil assembly, as claimed in Claim 44, further comprising:

a second overmolded part, wherein said second overmolded part is a bobbin that is overmolded to and attached to said coil, wherein said coil is disposed about at least part of
5 said second overmolded part.

49. An actuator/coil assembly, as claimed in Claim 48, further comprising:

at least one adhesive receptacle formed in said second overmolded part; and
adhesive disposed within said at least one adhesive receptacle of said second
10 overmolded part and also within a joint defined in part by said second overmolded part.

50. An actuator/coil assembly, as claimed in Claim 43, wherein:
said coil is disposed about at least part of said first overmolded part.

51. An actuator/coil assembly, as claimed in Claim 50, wherein:
said at least one adhesive receptacle intersects with a joint between said first
15 overmolded part and coil.